



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

Site: Carrier
Break: _____
Other: _____

DATE: SEP 22 1989

SUBJECT: Review of the Work Plan and Sampling Plan for the Carrier Corporation's Collierville Site, Collierville, Tennessee

FROM: Rich Muza, Regional Expert Hydrologist
Ground-Water Technology Unit

Rich Muza

TO: Felicia Barnett, Project Manager
KY/TN Unit, Superfund Branch

THRU: Rutherford B. Hayes, Chief
Ground-Water Technology Unit

R. Hayes

The subject plans have been reviewed as per your request of September 11, 1989. Seeing that nearby public supply wells have been impacted by trichloroethylene possibly migrating from the site, we have concerns in reviewing the sampling regime as proposed. We provide the following comments on the plans and recommend actions which we consider necessary to properly define the nature and extent of the ground-water contamination at the Collierville Site.

COMMENTS ON THE WORK PLAN

1. Section 3.4 (page 6) -- The seismic study discussed here may not be necessary. This is an expensive method to determine the extent of the confining layer separating the surficial aquifer from the Memphis Sands aquifer. We recommend that a literature review of geological reports for the area, lithologic logs of existing on-site monitor wells and other wells in the area, and additional boreholes be utilized to define this confining unit at the site.

2. Figure 5 -- Data provided in Section 1.2 of the Sampling Plan indicate contamination by chlorinated hydrocarbons in surficial aquifer monitor wells throughout the site. Degradation by chlorinated hydrocarbons was detected in two deep (Memphis Sands) monitor wells located near the 1985 spill area. The array of proposed monitor wells should allow for the determination of ground-water flow paths in the surficial aquifer and Memphis Sands aquifer. This network should also allow for a preliminary delineation of the nature and extent of the ground-water contamination emanating from the former spill areas. However, we are concerned that additional monitor wells are not proposed between the former surface impoundment and the City of Collierville wells. Trace levels of trichloroethylene have been detected in the municipal wells that may have migrated from the site. Monitor wells MW-19 and MW-21 are contaminated with chlorinated hydrocarbons. These monitor wells are located less than 200 feet from the East Well of the well field. Therefore, we recommend that additional monitor wells be located between the surface impoundment and the two municipal wells and that the municipal wells be sampled as part of the investigation.



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COMMENTS ON THE SAMPLING PLAN

1. Section 1.2 (page 8) -- The City of Collierville wells have been sampled and contained trace amounts of trichloroethylene. Are these wells currently being utilized for municipal supply and, if so, are these wells being monitored on a regular basis for water quality? We recommend that these wells be sampled as part of this investigation.
2. Section 4.2 (page 23) -- The deep monitor wells will be constructed by augering to the clay confining unit, installing and grouting a 4-inch minimum ID casing, and advancing through the clay into the Memphis Sands aquifer using mud rotary techniques. Two points are to be made here. A minimum 6-inch ID casing should be used as the protective casing. This will allow for the proper installation of a 2-inch monitor well into the deep aquifer. Also, if mud rotary techniques are to be used to advance the deep boring, samples of the drilling mud should be collected and analyzed for TCL parameters. Using mud rotary techniques will also require a stringent well development program so that all mud is removed from the hole.
3. Section 4.2 (page 24) -- The monitor wells are to be constructed of stainless steel screens and galvanized steel risers. This practice should be avoided. The coupling of these two different metals under saturated conditions will lead to bi-metallic corrosion. This corrosion can damage the well screens and impair future sample collection. We recommend that stainless steel be used as the construction material for the monitor wells.
4. Section 4.2 (page 25) -- The new monitor wells should be developed until the water is visibly free of suspended solids. The use of drilling mud will require additional development so that the mud cake is properly removed.

If you should have any questions, please contact me at x3866.